Worksheet- Modern Materials

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| KevlarName 2 products Kevlar is used for.Cables in civil engineering bullet proof vests Cut resistant gloves.  How much stronger than steel is Kevlar?5x stronger Name 2 properties of KevlarVery strong and durable.5x stronger than steelCan withstand high temperatures. Resist chemicals  | Carbon fibresWhy are Carbon fibres used to make racing cars?Flame proof. 4x stronger than steel with ¼ weightCircle the correct properties of Carbon fibreAbsorbent rigid flexible strong flameproof Flammable Name 2 other products often made from Carbon fibres. Helmets Aircraft framesHigh performance sport equipment.  | GRP (Glass reinforced plastics) What is GRP?Is a composite material made of plastic reinforced by fine fibres of glass. What is GRP resistant to?Water and corrosion Name 3 products often made from GRPWind turbine bladesBoat hullsBath tubsSwimming pools/water slidesSport carsCanoe Surf boardsAeroplanes |
| Phase changing materialsWhat are Phase changing materials?Material that absorb, store and releases heat to maintain body temperature. Name 3 products often made from these materials. BeddingWheel chair cushionsFootwearSki wearOutwearSleeping bags | NomexWhat is Nomex?Flame-resistant materialWhat properties make it suitable for racing car driver’s clothes?Heat resistantFlame resistantSpark resistantDurable Light weight  | Geotextiles What does the term “civil engineering” mean? Industry term used for the construction of roads, bridges, canals, dams, and buildings)What is geotextiles used for They can also be used to protect and strengthen river embankments from erosion. Name a property that makes it suitable for this? Absorbent, can separate, filter, reinforce, protect and drain |

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| LCD (Liquid crystal display) Fill the blanks. LCD’s can block or allow light to pass through, depending on the amount of electricity  applied. Why is LCD better for portable electronic appliances?Allow displays to be much thinner and consume less power | Rhovyl as an antibacterial fibre. What is Rhovyl?The antibacterial substance is added in the heart of the fibre and prevents the development of bacteria that form during any bodily activity.What products is it used for?BeddingUnderwearSocksChild care (clothing) | Breathable materialsWhat does “breathable” material mean?Let’s sweat (perspiration) out but not rain in, thus allowing the fabric to “breath” What do breathable materials do with sweat?Absorbs & releases sweat quicklyGive an example of a breathable materialGortex  |
| UV protective clothing Fill in the blanksPre-treated with uv preventing ingredients during manufacture to enhance their effectiveness. (titanium dioxide)What products is it used for?Hatsbeach wear –especially for childrenUV beach tents | http://maximmart.com/images/what-is-microfiber.jpgMicrofibresWhat is the technical definition of a microfibre? Less than one denier thick Ultra fineSoftHigh strengthComfortableBreathableQuick drying Absorbent but dries very fast. Name 3 propertiesWhat are they commonly used for?Underwear, active sportswear, cleaning products  | Why does the structure of Kevlar make it so strong?Molecules can pack closely together Why might GRP be used in a product, rather than carbon fibre?Less expensive and less stiff and brittle What happens when your body temperature increases and cools, when wearing phase changing materials?The material absorbs the heat and stores it. When body temperature comes down, the stored heat is released back to the body.  |